

Remarks

Claims 1-30 are pending in this application. Claims 14-30 are withdrawn from consideration. By this Amendment, claims 1, 2, and 13 are amended, and claims 31 and 32 are added. Reconsideration of claims 1-13, 31 and 32 is respectfully requested.

Applicants gratefully acknowledge that the Office Action indicates that claims 3, 6, and 8-12 recite allowable subject matter. However, based on the foregoing amendments and following Remarks, applicants respectfully submit that all claims are in condition for allowance.

The Office Action rejects claims 1, 2, 4, 5, and 7 under 35 U.S.C. §102(e) over Gooch (U.S. Patent 6,521,477 B1). This rejection is respectfully traversed.

Gooch discloses a method for vacuum packaging an array of MEMS devices fabricated on a device wafer, by attaching the device wafer to a lid wafer in an evacuation chamber, while heating the wafers to activate the adhesive between the wafers. Applicants submit that Gooch does not disclose "dicing the MEMS wafer to separate individual dies from the MEMS wafer" and then "connecting said die onto said second wafer," as recited in claims 1 and 13, because Gooch does not separate the individual devices before attaching them to the lid wafer.

Instead of dicing the MEMS wafer to separate the individual dies from the MEMS wafer, Gooch discloses that "device wafer 10 is brought into contact with lid wafer 30 creating a vacuum seal between lid sealing rings 32 and device sealing rings 16. Thus, all MEMS devices 12 on device wafer 10 are now enclosed within a vacuum package." (See col. 7, lines 33-37.) This is consistent with the stated advantages of the invention, which are that "the vacuum packaged MEMS devices may be tested at the wafer level," (see col. 9, lines 9-11)

The dicing operation in Gooch only takes place after the device wafer has been bonded to the lid wafer. As set forth in col. 11, lines 14-22, "Device wafer 10 is then brought into alignment with lid wafer 30 followed by contacting the two wafers in a vacuum environment to produce vacuum packaged MEMS devices 12. After the completed assembly is cooled, probe access channels are opened above package bonding pads 86 to allow testing of vacuum packaged MEMS devices using bulk IC testing procedures. After all dies on the completed assembly are tested, the completed assembly is diced into individual dies."

Gooch does show a single device element, vacuum packaged with a lid, as shown in Figs. 3 and 4, and described in col. 4, lines 28-55, however, the single device element has not been

separated from the device wafer, the figure merely shows a close-up view of the device wafer, and this view includes only a single device element. This is clearly indicated in col. 4, line 50, through col. 5, line 8, which reads as "Although the following will describe the formation of a sealing ring 16 surrounding a single MEMS device 12, all MEMS devices on device wafer 10 have sealing rings formed simultaneously... Every MEMS device 12 upon device wafer 10 now has a sealing ring 16 prepared to receive a heat activated solder sealed vacuum package lid." Therefore, the MEMS devices 12 are still on the device wafer 10, in Figs. 3 and 4 described by this passage.

Furthermore, because Gooch does not separate the devices before attaching the lid wafer, Gooch also does not rotate "said die out of the original plane of fabrication," as recited in claim 2. It is not possible to rotate the dies out of the original plane of fabrication, without first separating them from this original plane of fabrication. Gooch does not disclose separating the dies from the plane of fabrication, until they have been vacuum packaged with the lid wafer in place. Therefore, Gooch does not disclose "rotating said die out of the original plane of fabrication, before connecting to said second wafer," as recited in claim 2.

Therefore, Gooch does not disclose each and every element of claim 1. Claims 1-12 depend from claim 1, and are patentable at least for the reasons set forth above, as well as for the additional features they recite. Applicants respectfully request that the rejection of claims 1-12 be withdrawn.

Claim 13 is rejected under 35 U.S.C. §103(e) over Gooch. This rejection is respectfully traversed.

As discussed above, Gooch only discloses bonding a device wafer to a lid wafer and sealing the assembly in an evacuation chamber. Gooch does not disclose processing any subset of a full wafer, such as a row, prior to bonding to the lid wafer. Therefore, Gooch does not disclose "dicing the MEMS wafer to separate individual rows from the MEMS wafer" and then "connecting said devices onto said second wafer." Therefore, Gooch does not disclose or suggest each and every element of claim 13, and Applicants respectfully request that the rejection be withdrawn.

Based on the foregoing remarks, Applicants submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-13, 31 and 32 are respectfully solicited.

Should the Examiner believe that anything further is desirable to place this application in better condition for allowance, the Examiner is invited to contact Applicants undersigned representative, at the telephone number set forth below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Jaquelin K. Spong". The signature is fluid and cursive, with the first name "Jaquelin" being more prominent than the last name "Spong".

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